Australasian Shorebird Conference

Nelson, New Zealand

11-13 December 2005

Programme and abstracts

OSNZ

Australasian Wader Studies Group

Department of Conservation
Te Papa Atawhai

New Zealand Wader Study Group

The 3rd Australasian Ornithological Congress (ASC)

The ASC is the biennial meeting of the Australasian Wader Studies Group (AWSG). This year we are pleased to be able to host it for the first time in New Zealand, in collaboration with the Ornithological Society of New Zealand and the New Zealand Wader Study Group. The AWSG is a non-government group whose mission is to ensure the future of waders and their habitats in Australasia through research and conservation programs and to encourage and assist similar programs in the rest of the East Asian-Australasian Flyway and Shorebird Site Network. Please visit the AWSG's website for more details: www.tasweb.com.au/awsg/

Message from the Department of Conservation

The Department of Conservation is the leading Government agency responsible for conserving New Zealand's endemic birdlife. As part of this we are delighted to support the Ornithological Society of New Zealand in hosting the 2005 Australasian Shorebird Conference.

This booklet of abstracts has been produced with financial support from the Threatened Species Unit, the Marine Conservation Unit, and the Science & Technical Publishing Units of the Research, Development & Improvement Division of the Department of Conservation.

The Department of Conservation would like to welcome all the delegates to the ASC 2005 and hope that you find this a fruitful gathering.

With best wishes

Geoff Hicks
Chief Scientist
Research, Development & Improvement Division

Message from the ASC programme organiser

Welcome to what I hope will be an interesting and stimulating meeting. We have a varied programme on offer, which I hope will inform us about recent work happening in Australasia and elsewhere along the East Asian-Australasian Flyway, and also stimulate new ventures. The advantage of a conference is the opportunity for face-to-face meetings and discussion so do make the most of the breaks and social times for informal interactions.

Please note that not all talks are the same length. While most slots are 25 minutes, some are longer and some are shorter than this.

Phil Battley
University of Otago

Australasian Shorebird Conference Programme

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1000-1030	Morning tea	
1030-1230	New Zealand endemics	Chair Phil Battley
1230-1330	Lunch	
1330-1510	Population monitoring	Chair Ken Rogers
1510-1540	Afternoon tea	
1540-1720	Distribution	Chair David Melville
1800-1930	Drinks and relaxation	
1930	Conference dinner	

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1040-1155	Population biology	Chair Danny Rogers
1155-1310	Lunch	
1310-1450	Habitat use / Conservation	Chair Silke Nebel
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Setting the scene: research long the East Asian-Australasian Flyway

Phil Battley

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The East Asian-Australasian Flyway (EAAF) spreads from central Siberia to western Alaska, funnels through eastern Asia and terminates in Australia and New Zealand. It is one of the world's lesser-known flyways but is one of the most threatened. The state of knowledge about the species using the EAAF is improving but lags behind that of other major flyways, in part because the distribution of researchers and birds differs between the EAAF and other flyways, but also because the research capacities of shorebirders differ. Whereas the vast majority of humans in the EAAF live in Asia, most researchers or enthusiasts reside in Australasia, so more work has been done on shorebirds on the non-breeding grounds than on migration or during breeding. Elsewhere, government- or university-based researchers carry out major long-term research programmes on shorebirds. In contrast, most shorebirders in the EAAF are volunteers, without the time to undertake major research projects. Nevertheless, successful research has been done in Australasia on a number of species including Red and Great Knots, Bar-tailed Godwits and Eastern Curlews. The successes of these projects will be discussed, as will the challenges to taking such endeavours further on both the non-breeding and staging grounds. These include the ubiquitous issue of finding money for conservation-oriented work but also unpredictable issues such as SARS and Poultry Flu outbreaks. New research initiatives include detailed demographic monitoring on the non-breeding grounds. We can only hope that this information can be used to argue for conservation measures, rather than document species declines.

Snipe – New Zealand's bird of myth and mystery

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New Zealand's snipes (genus *Coenocorypha*) are arguably the most characteristic birds of the New Zealand region, formally occurring throughout the mainland and most outlying island groups, and all-but confined to the region. Paradoxically, they are one of New Zealand's least familiar birds, now restricted to remote islands free of introduced predators, and generally inhabiting areas of dense vegetation. Comparisons of *Coenocorypha* breeding ecology with that of Common Snipe (*Gallinago gallinago*) revealed many differences indicating high intraspecific competition for food. Along with their small clutch size, large eggs, shared incubation and prolonged parental care, *Coenocorypha* snipes are the only scolopacids known to perform courtship feeding. Long considered not to perform aerial displays, at least five populations of *Coenocorypha* snipes are now known to have displays homologous with drumming or bleating displays of *Gallinago* snipes. These dramatic nocturnal displays were greatly feared by Maori, and formed part of the hakawai/hokioi legend, a mythical bird that featured in Maori proverbs and song.

At least five taxa of *Coenocorypha* snipes have become extinct following introductions of predatory mammals, particularly rats. The most recent and best documented extinction was that of Stewart Island snipe (*C. aucklandica iredalei*) in 1964 following an irruption of Ship Rats (*Rattus rattus*) on Big South Cape Island. The tragic loss of snipe and hakawai from the southern muttonbird islands was somewhat offset by the remarkable discovery of a previously unknown *Coenocorypha* snipe on a 19 ha rat-free islet off subantarctic Campbell Island in 1997. Management actions following this discovery include a trial at holding Chatham Island Snipe (*C. pusilla*) in captivity, and translocation of 30 Snares Island Snipe (*C. a. huegeli*) to a restored muttonbird island near Big South Cape Island.

Discovery and description of New Zealand endemic shorebirds: an historical overview

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The first descriptions of New Zealand endemic shorebirds were based on specimens of the Variable Oystercatcher (*Haematopus unicolor*), Shore Plover (*Thinornis novaeseelandiae*) and Southern New Zealand Dotterel (*Charadrius obscurus obscurus*) that were collected at Dusky Sound in 1773 in the course of James Cook's second voyage round the world. Reinhold Forster, the official naturalist on the voyage, described those species in Latin under the names *Haematopus unicolor*, *Charadrius torquatula*, and *Charadrius glareola*, respectively, in his manuscript *Descriptiones Animalium* that was compiled on the voyage. Two of those birds, the Shore Plover and the Southern New Zealand Dotterel, were painted by his son George who was on the voyage as an assistant naturalist and natural history draughtsman. These paintings formed the sole basis of Latham's 1785 descriptions in English of the New Zealand Plover and the Dusky Plover, which names were latinised by Gmelin in 1789 as *Charadrius novaeseelandiae* and *Charadrius obscurus*. The birds depicted in the two Forster paintings are therefore the holotypes of *Thinornis novaeseelandiae* (Gmelin, 1789) and *Charadrius o. obscurus* Gmelin, 1789. The specimens themselves do not exist. The Variable Oystercatcher was not validly named until 1844 when Lichtenstein published a slightly-edited version of Forster's *Descriptiones Animalium*. No type specimen of *Haematopus unicolor* exists. Dusky Sound has always been accepted, correctly, as the type locality of both *Haematopus unicolor* and *Charadrius o. obscurus*. The correct type locality of *Thinornis novaeseelandiae* is also Dusky Sound, not Queen Charlotte Sound as hitherto believed.

Increasing South Island Pied Oystercatcher populations: where to from here?

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Data gathered during census work by the Ornithological Society of New Zealand show that South Island Pied Oystercatcher (*Haematopus ostralegus finschi*) numbers increased dramatically between 1960 and 1995 with a concurrent change of breeding habitat use and breeding range. Factors that allowed or limited this change are discussed. Known and potential impacts of this change are considered. What is the probability of this change continuing?

Chatham Island Oystercatcher population responds to conservation management

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The Chatham Island Oystercatcher (*Haematopus chathamensis*) is an endangered species that breeds only on the Chatham Islands. One of the main factors limiting population growth is low productivity. Of 19 nest failures seen on film, 13 were caused by cats eating the eggs. The population was estimated at 103 birds in 1987 and 142 in 1998, and this increase may partly have been a response to sporadic predator control in northern Chatham Island, where an average of 0.53 chicks were produced per pair per year. In 1998-2004 more intensive trapping of introduced predators (mainly feral cats and weka) occurred each summer along 16 km of coast. Farm stock were excluded from nesting areas and eggs laid close to the high tide mark were moved further up the beach. An increasing breeding population (16-35 pairs) in the managed areas produced 18-35 chicks per year (at an average of 1.04 chicks per pair) and an increasing population (9-19 pairs) in nearby areas produced 0-12 chicks (0.34 chicks per pair). Survival of colour-banded juveniles was very high (0.94 for the first year), for example of 17 chicks in the 1998 cohort, 14 (82%) survived 6 years and bred from 2-5 years of age. This recruitment accelerated the population increase in northern Chatham Island and boosted total numbers. A minimum count in 2004 of 266 birds on most of the coast of four islands in the Chathams group represented a population of 310-325 birds. Management has been highly successful and the Recovery Plan goal of increasing the population to >250 birds by the year 2011 was achieved 8 years early. A longer term goal is to improve nesting habitat. Introduced marram has reduced the availability of safe nest sites so that eggs are vulnerable to high seas. Therefore, dune restoration trials were conducted to reduce the future need for active management of nests.

Monitoring shorebird numbers during migration at Saemangeum, South Korea: documenting or averting a crisis?

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The Saemangeum land-claim project in South Korea is in the process of destroying what is arguably the single most important coastal site for shorebirds in Asia. A 33-km long seawall is under construction, and will eventually enclose 41,000 ha of tidal flat and shallow water, which would otherwise have hosted perhaps 400,000 birds through the year including significant numbers of the endangered Spoon-billed Sandpiper and Nordmann's Greenshank. One of the arguments being used to justify the land-claim is that the birds will simply relocate elsewhere. We are planning a coordinated international counting expedition to Saemangeum in April-May 2006 in order to gather rigorous, defendable data on the numbers and origins of birds using this complex and other sites in coastal South Korea. The aims of the work are to (1) determine accurately peak counts of birds through the migration season, (2) use sightings of marked birds, visible departures, and identification of 'cohorts' of migrants to get first estimates of turnover through the season, and (3) assess shorebird numbers at other sites that birds could potentially relocate to if Saemangeum was to become unavailable to them. The data will have two possible uses, depending on political will. They will more fully establish the importance of Saemangeum in the context of the East Asian-Australasian Flyway and be of use in arguing for the protection of this area. Alternatively, if seawall closure occurs, we have a baseline with which to compare future abundances and habitat use and to document the impacts on migratory shorebirds. The survey work will rely on Korean and experienced international volunteers, and AWSG members are ideal. We will be seeking funds to cover costs within South Korea, but volunteers would have to pay their own way to Korea. We are open to suggestions on any aspects of the program, and encourage birders in the East Asian-Australasian Flyway to become involved, in the hope that this work really can make a difference.

Monitoring Yellow Sea Migrants in Australia: the AWSG program in the North-west

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Many migratory shorebirds are believed to be declining, and there is a need to assess their population trends. It is conventional to attempt shorebird monitoring through regular high-tide counts (when shorebirds congregate in a small number of roost sites) on the non-breeding grounds (when counts are least likely to be influenced by migratory movements). Many shorebird enthusiasts carry out regular counts on Australian non-breeding grounds, but there has been no comprehensive analysis; it is quite likely that the data being collected are only sensitive enough to detect large population changes over quite long periods of time. Concern over the limitations of the shorebird count program in Australia has been increasing because of the current reclamation of Saemangeum, a major shorebird staging site in Korea used by a large proportion of the flyway's shorebirds, including over 20% of the Great Knot population. Will the loss of this site cause a decline in shorebird populations, and if so, will we be able to detect it?

In this presentation we describe progress on two broad objectives of the "MYSMA" project – Monitoring Yellow Sea Migrants in Australia:

(1) To initiate a powerful and repeatable count program in North-western Australia, which holds more Yellow Sea migrants than any other region within Australia but has not been monitored adequately in the past. We describe the count methodologies we have settled on at three key locations, the reasoning behind them, and some results from the first surveys.
(2) Investigate methodological approaches that will increase the sensitivity of population monitoring on the non-breeding grounds. We contend that the key is developing realistic estimates of variance in a count, and that this variance has three components: Observer error, site-specific error and area error. Building on a Dutch methodology, we give estimates of error in North-western Australian counts (to be tested in subsequent fieldwork) and some guidelines that we hope can be applied to other sites. In particular, we argue that "calibration" of a shorebird site, with repeated same-season counts, and recording of subflock totals, can greatly improve the sensitivity of population monitoring.

We conclude with some thoughts on the state of population monitoring of shorebirds in Australia. We argue that a full-time employed count-coordinator is needed to revitalise the population monitoring program.

Estimating observer error in wader counts using digital photography

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The inherent difficulty of counting migratory waders is widely accepted. These difficulties include the sheer number of birds recorded at sites, variations in plumage at the different moult stages, their sometimes cryptic habits, differences in observer platforms and even the background colour of the roost. In spite of these difficulties, counts at high tide roosts still form the basis of estimates of wader populations at over-wintering sites across Australia and New Zealand. The need to quantify the level of observer error recorded during wader counts is essential for making comparisons across long term data sets and fundamental to detecting real changes in wader populations. In this study, digital photographs were used to compare 'actual' bird numbers to estimates from observers during boat and ground-based surveys at two major roost sites in the Hunter estuary, New South Wales. These results are discussed in view of the degree of inter- and intra-observer variability associated with each count type, and its potential application for calculating correction factors for trend analyses.

What has been happening to waders in Moreton Bay, Queensland?

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Moreton Bay is a large semi-enclosed embayment on the central east coast of Australia adjacent to the Queensland state capital, Brisbane (population > 1M). It has been estimated to support between 40 – 80,000 waders, with internationally significant numbers of 10 species. The Queensland Wader Study Group (QWSG) has been monitoring waders at high tide roosts in Moreton Bay since 1991. Wader counts are made at over 40 of the 116 known roosts and other large (> 1000 birds) less accessible roosts are counted several times each year. Analysis of these counts shows the benefits of regular monthly monitoring at important roost sites. Changes in the distribution and abundance of waders within the bay are easily detected and can provide good biological indicators of local ecosystem health. I will illustrate some of the trends by showing what has been happening to four species, Black-tailed Godwit, Grey-tailed Tattler, Great Knot and Red-necked Stint.

One of the factors affecting the distribution and abundance of several species of wader is the large Port of Brisbane reclamation at the mouth of the Brisbane River. The reclamation commenced in 1976 and will be ongoing until 2025. The dredge ponds provide attractive feeding and roosting habitat for Red-necked Stint, while > 500 Grey-tailed Tattler roost on the retaining walls. The creation of this artificial habitat has led to a contraction in the distribution of both species within Moreton Bay and now the majority of the Red-necked Stint population feeds and roosts within the reclamation site. Enlightened Port management have recognized the significance of the reclamation site to waders (> 13,000 birds during summer). A shorebird management plan has been produced, waders numbers and habitat use are monitored monthly by the QWSG and a 12 ha artificial roost with viewing hides has been constructed. This roost attempts to recreate the mix of habitats within the rest of the reclamation so that some habitat will remain for the majority of species when the development is completed in 2025.

The other benefit of regular monthly counts by QWSG is that it has shown that Moreton Bay is not the final destination of several wader species, whose numbers peak in Moreton Bay during migration. Passage migrants such as Grey-tailed Tattler are more abundant during both southward and northward migration. QWSG counts in Moreton Bay show that the numbers of passage migrants have dropped dramatically while the numbers spending the non-breeding season in Moreton Bay have remained stable since 1991. As Moreton Bay is near the species southern limit of its distribution in eastern Australia, Grey-tailed Tattler may be in early population decline as its distribution contracts northwards. Monthly counts at large numbers of roosts also allow for the effects of other factors such as weather, tides and observers on count accuracy and precision to be taken into account. They provide better insight into the overall health of the population and can give an early warning of the next species of conservation concern.

On the conservation management value of predictive GIS modelling and free public data for stop-over sites and flyways: the example of migratory shorebird populations in the Sea of Okhotsk, Russian Far East as a global template.

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Latest developments in GIS mapping, coastal environmental databases, public access to digital information online, Remote Sensing and computational decision-support offer entirly new approaches to shorebird and habitat research and conservation management. Predictive spatial modeling allows us to present the relative probability of occurrence for species of interest at specific localities for a specific time window, e.g. during migration stop over. This new approach proves particularly useful for large areas which are unknown or poorly studied, as well as for large-scale studies to obtain an overall picture.

The Sea of Okhotsk in Russian Far East consists of a huge coastline along the East Asian-Australasian (EAA) Flyway. Detailed shorebird survey data, turn-over and population estimates are usually missing for this region, and therefore we use 'presence only' information and confirmed absence from our own seven years of field work and from our larger Russian Literature Review (summarized in a GIS database). This allows to help predicting the occurrence of shorebirds (Great Knot, Red Knot and Bar-tailed Godwit) during fall and spring migration. For habitat predictors we used tidal range, river type and size, surrounding substrate type and mudflat size obtained from Remote Sensing layers, software tools, hardcopy maps and others. A progressive modeling approach is presented using GIS and statistical linear and non-linear modeling algorithms such as GLMs, CART and MARS. Accuray assessment of pedictions with alternative data is crucial. Linking the predicted migration sites with known and assumed turn-over estimates from our fieldwork and from scenarios can be used in this new spatial modelling context in order to match and to evaluate relevant estimates of the overall population along the flyway. The model and data are described as FGDC NBII Metadata online. We believe that our GIS approach has even more merit when combined with capture-mark-recapture demography and telemetry, and when implementing sighting databases of leg-flags.

After a thorough assessment and constant data and model improvment, it is suggested that such approaches are becoming a standard for the management of other migrants and flyways world-wide. An outlook is given which data sets are still lacking, and how these methods can be applied for conservation management and policy sustaining the future of shorebirds and their habitats.

The distribution and conservation of waders in the Bay of Plenty, New Zealand, 1984-2003

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For the last two decades waders (Order *Charadriiformes*) have been counted during summer and winter at high tide roosts on harbours, estuaries and beaches in the Bay of Plenty, New Zealand. Here we describe the distribution of each species and changes in their abundance, (i) between seasons, and (ii) over the study period (1984 to 2003) from 24 study sites. During summer an average of 163,000 waders (1984-1994) comprising predominantly northern hemisphere migrants (139,000) along with native species (24,000) was recorded around the New Zealand coastline. Northern hemisphere waders in the Bay of Plenty comprised 8% (11,150) and native waders 3.5% (840) of these totals. During winter an average of 130,000 (1984-1994) mainly native waders (112,000) and fewer Northern hemisphere migrant waders (18,000) were present on New Zealand shores. Of these totals 3.8% occurred in the Bay of Plenty, comprising predominantly native 3.2 % (3,600) with some migrants 7.6% (1,370). More than 1% of the total national population of some wader species use Bay of Plenty harbours, estuaries and beaches at certain times of the year. They are Eastern Bar-tailed Godwit, Variable Oystercatcher, Northern New Zealand Dotterel, Pacific Golden Plover, Banded Dotterel, Turnstone, Pied Stilt, Wrybill and South Island Pied Oystercatcher.

Tauranga Harbour held more than 1% of the national population of Northern New Zealand Dotterel, Eastern Bar-tailed Godwit, Turnstone, Banded Dotterel, Wrybill Variable Oystercatcher and Pied Stilt. This harbour hosts 12 uncommon and rare migratory wader species. It was the only site to annually host the critically threatened Black Stilt. Ohiwa Harbour held more than 1% of the national population of Northern New Zealand Dotterel, Eastern Bar-tailed Godwit, Variable Oystercatcher, Pacific Golden Plover and Banded Dotterel. Ohiwa regularly hosts small flocks of Eastern Curlew and Whimbrel. Kaituna River Mouth/Maketu Estuary held more than 1% of the national population of Pacific Golden Plover and just less than 1% of the Northern New Zealand Dotterel. This estuary hosts an additional 18 species of uncommon and rare migratory northern hemisphere wader species. It also hosts the largest summer and winter concentrations of Spur-winged Plover in the region. Waihi Estuary/Pukehina Spit held more than 1% of the national population of Northern New Zealand Dotterel.

Northern New Zealand Dotterel numbers increased substantially in the region due to the protection programme on Matakana Island and to a lesser extent at the Waiaua River Estuary. Wrybill, Turnstone and Red Knot numbers declined in the region over the study period. These and other trends are discussed. Counts of uncommon and rare arctic migrant and native waders are also provided.

Site fidelity in the non-breeding season of the Pied Oystercatcher in Victoria, Australia.

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The Pied Oystercatcher (*Haematopus longirostris*) population of Australia is only about 10,000 individuals with 1,500 in Victoria. The Victorian Wader Study Group has been conducting a study of Pied Oystercatchers in Victoria since early 1979. Oystercatchers have been banded at various localities in Port Phillip Bay, Western Port and the Corner Inlet complex. During the 24-year period up to July 2003, 2127 Pied Oystercatchers were banded and 1160 re-traps made. Of these 2077 were colour marked with unique colour combinations (since 1989). About 4000 sightings of colour marked birds have been reported. These data have been analysed to investigate the site fidelity of over wintering oystercatchers, timing of movements between wintering locations and breeding areas, and distances moved.

Movements of Pied Oystercatchers were much more extensive, and variable, than previously envisaged. Birds moved between different non-breeding flocks during the same year, usually within the same embayment eg Western Port. Some birds moved from non-breeding flocks to breeding grounds along the coast as far west as the mouth of the Murray River (South Australia) a distance of over 1,800 km and as far north as Botany Bay and Newcastle (New South Wales) a distance of about 1,800 km before returning the following winter. Other birds which moved to distant breeding areas remained there for the rest of their lives. Movements were recorded to the Bass Strait islands and to the northern and western coasts of Tasmania.

Southward migration of Shorebirds through Moroshechnaya Estuary, Far East Russia, August 2004

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During 9 – 21 August 2004 an international team of ornithologists visited the mouth of the Moroshechnaya River, Kamchatka (the most northern Shorebird Network Site in the East Asian- Australasian Flyway). The expedition was organized to gather additional baseline information on shorebirds utilizing this site during southward migration. Earlier studies by Gerasimov and Huettmann pointed to the importance of this estuary during northward and southward migration. The expedition carried out the following program:

(i) Quantitative monitoring of populations during southward migration during seven surveys on the estuary and ocean beach. The most common shorebird species detected were Dunlin (*Calidris alpina),* Red-necked Stint (*C. ruficollis),* Whimbrel *(Numenius phaepus),* Bar-tailed Godwit *(Limosa lapponica)* and Great Knot *(C. tenuirostris).* Maximum number of shorebirds on one day was about 15,000. Dunlin was the most numerous species; an estimated 18,000 – 26,000 birds passed through during the expedition.

(ii) A total of 227 shorebirds were captured. For the first time, yellow/ black leg flags were used according to the flyway scheme.

(iii) Blood samples for DNA were taken from Dunlin to determine subspecies utilizing the area (lead by Liv Wennerberg).

(iv) Feather samples were taken for stable isotopes (C/N and others) mainly to investigate the origin of birds (lead by Falk Huettmann).

(v) Faecal samples from 88 individual shorebirds of 5 species, mostly juvenile Dunlin and Red-necked Stint, confirmed the absence of avian influenza viruses (lead by Paul Selleck, Australian Animal Health Laboratory).

Overall, our estimates of shorebird numbers using the area support the importance of the estuary during southward migration, but do not agree with higher numbers as reported by Gerasimov and Gerasimov (1997). This could be due to different assumptions in estimating parameters such as turn-over rates.

Differential migration of Australasian waders

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Most shorebirds are long-distance migrants that breed in the Arctic and spend the non-breeding season at temperate or tropical latitudes. Intra-specific differences in choice of non-breeding site regarding age or sex are common among migratory birds, but in shorebirds using the East-Asian-Australasian Flyway, information remains scarce. Sex-biased differential migration has, however, important implications for conservation management, as the disproportionate loss of members of one sex will significantly reduce effective population size. Because habitat loss in the non-breeding range is a major threat to shorebirds, differential migrants need to be identified and managed accordingly. Here, we provide an overview of what has been published to date on this topic and present new results based on biometric data collected by the Victorian and the Australasian Wader Studies Groups.

Status of waders in Timor-Leste (East Timor) and the Nusa Tenggara region

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Knowledge of the status of waders in the Timor region is poor. From August 2002 to October 2005 data on wader numbers and species composition were collected in Timor-Leste, with additional surveys at Kupang Bay (Indonesian West Timor). Additionally, records from Ashmore Reef and sites on Sumba and Flores islands were reviewed.

In Timor-Leste, there were 2,461 records of 43 shorebird species; one additional species the Asian Dowitcher was recorded once by a colleague. Of the 44 shorebirds known from Timor island, six species are resident (Comb-crested Jacana *Irediparra gallinaceae*, Malaysian Plover *Charadrius peronii*, Red-capped Plover *Charadrius ruficapillus*, Greater Painted Snipe *Rostratula benghalensis*, Black-winged Stilt *Himantopus himantopus* and Beach Thick-knee *Esacus neglectus*), 36 species are Palearctic migrants, one is an Austral winter migrant (Australian Pratincole *Stiltia isabella*), and the Masked Lapwing *Vanellus miles* is an austral vagrant (newly reported for Timor Island). Twenty Palearctic migrants typically winter on Timor and 16 species occur as brief transients especially during the southward migration.

The eight most frequently occurring Palearctic migrants were Common Sandpiper *Actitus hypoleucos*, Common Greenshank *Tringa nebularia*, Red-necked Stint *Calidris ruficollis*, Marsh Sandpiper *Tringa stagnatilis*, Wood Sandpiper *Tringa glareola*, Pacific Golden Plover *Pluvialis fulva* and Whimbrel *Numenius phaeopus* (each with > 100 records), contrasting with rarely occurring species such as Little Curlew *Numenius minutus*, Red Knot *Calidris canutus*, Kentish Plover *Charadrius alexandrinus*, Pectoral Sandpiper *Calidris pectoralis*, Broad-billed Sandpiper *Limicola falcinellus*, Ruff *Philomachus pugnax* and Spotted Redshank *Tringa erythropus* that each had fewer than seven records. Flock sizes in Timor-Leste were generally small with just eight shorebirds recorded in groups of 100 or more birds: Grey Plover *Pluvialis squatarola* (maximum of 100 birds), Red-capped Plover (300), Red-necked Stint (240), Red-necked Phalarope *Phalaropus lobatus* (700), Common Greenshank (156), Black-winged Stilt *Himantopus himantopus* (338), Oriental Pratincole *Glareola maldivarum* (3,000) and Australian Pratincole (150).

Patterns in the seasonality, species composition and abundance of migrant shorebirds in Timor-Leste are similar to selected sites on Sumba and Flores. Kupang Bay is a large wetland which has greater numbers of shorebirds including records of up to 10,000 Australian Pratincole. Perhaps only Australian Pratincole and Oriental Pratincole occur in internationally significant numbers (reaching the 1% criterion) in Nusa Tenggara. This contrasts with nearby Ashmore Reef where at least nine shorebirds occurring in internationally significant numbers.

Expedition Report to the Russian Far East – Chukotka 2005

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Since 1988, the Russian Academy of Science, in cooperation with conservation NGOs (Goose, Swan and Duck Study Group of Northern Eurasia and Russian Wader Research Group), has run research expeditions focused on threatened species of birds in the Russian Arctic. Mixed international teams of about 15 researchers, students and volunteers join the expeditions under the leadership of Dr. Evgeny Syroechkovskiy, Jr. In 2005 an expedition to Chukotka Peninsula in easternmost Russia took place.

Chukotka hosts many of the shorebirds that occur in New Zealand and Australia. The rolling tundra state is about three times the size of New Zealand but with less than 100,000 people. The capital Anadyr is a 9-hour flight from Moscow. The expedition of 2005 visited coastal areas between the Anadyr and the border with Koryakia in the south. Surveys of potential Spoon-billed Sandpiper breeding areas (aided by Landsat satellite images) and monitoring of known breeding areas were the principle objectives. This globally threatened species has only about 300-500 breeding pairs left and is declining. During visits to known and potential Spoon-billed Sandpiper breeding areas the general status of all other breeding birds was recorded. Where possible adult and juvenile waders were caught on the nest and marked with light green colour-flags (the code for South Chukotka). Breeding and foraging seabirds were also recorded during boat trips. Migration started at the end of July and efforts were made to locate leg-flagged waders.

Sexual conflict and the evolution of breeding systems in shorebirds

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Sexual conflict, i.e. different evolutionary interests of males and females, is a pervasive evolutionary force. The objective of this presentation is to evaluate the effects of sexual conflict, phylogenetic constraints and ecology on shorebird breeding systems. First, I show that shorebirds that feed their young exhibit less variable breeding systems than those with precocial young, probably because the demand of young limits the intensity of sexual conflict. Second, evolutionary changes in parental care by the male and the female are consistent with predictions of sexual conflict. Finally, I discuss how these processes may influence macroevolution: speciation and extinction rates of shorebirds.

Estimating population size and trends in the Wrybill (*Anarhynchus frontalis*)

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The Wrybill (*Anarhynchus frontalis*) is a threatened shorebird endemic to New Zealand. It breeds exclusively in braided rivers east of the main divide in the South Island. Almost the entire population migrates to the North Island after breeding, with about 85% of birds wintering in the large harbours around Auckland. Determining population size accurately has proven difficult. Counts of the whole population on the breeding grounds are impractical. Counts of wintering flocks suggest a population size of about 5000 individuals, but counts are variable from year to year and trends are not clear. A third option is to use demographic data to calculate the capacity of the population for increase. Data from a study in the Tasman and Tekapo Rivers, South Canterbury, from 1997-2000 are presented. Survival and productivity (and therefore calculated population trends) varied substantially between sites and years. There were large differences in productivity between unmanaged sites in the two rivers. Mammalian predators (particularly stoats *Mustela erminea*) had a major impact in an unmanaged area in the Tasman River; from 1997-2000, stoat density was high and Wrybill productivity and survival were very low. When stoat density fell in 2002/03, Wrybill productivity rose in the absence of any management. These temporal and geographical differences were substantial, and suggest that short-term studies in one location are unlikely to provide a reliable indication of overall trends in the Wrybill population.

Assessing the resource base for waders on Farewell Spit, New Zealand

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Numbers of Red Knots (*Calidris canutus*) have declined on the undisturbed, protected Scientific Reserve of Farewell Spit, NW Nelson. This decline is not mirrored at other major sites, suggesting that local factors may be involved, but a lack of baseline information on the sediment-invertebrate-bird relationships makes understanding any changes in bird numbers impossible. Accordingly, we conducted a large-scale survey of the ~10,000 ha tidal flats in March 2003. 192 stations were sampled, 500 m apart down transects every kilometre along the 29 km of the spit. At each site triplicate benthos core samples, a single sediment sample and eelgrass (*Zostera meulleri*) surface cover estimates were taken. 91 taxa of differing taxonomic levels were identified. Six taxa dominated the samples numerically, accounting for almost 70% of individuals recorded: the cockle (*Austrovenus stutchburyi*) spionid polychaetes, pipi (*Paphies australis*), amphipods, a barnacle (*Eliminius modestus*), and isopods. Most taxa were quite widely distributed and there was evidence of an increase in species diversity with increasing *Zostera* cover. Translating this information into something meaningful for the distribution of shorebirds over such a vast area is difficult, but there is some evidence that numbers of birds at high tide match the resources available on the adjacent tidal flats. We suggest that the intertidal ecosystem of Farewell Spit is dominated by the role of eelgrass, and that while bare sand and dense eelgrass beds may both be good for foraging knots, intermediate eelgrass levels may not be.

The feeding behaviour and diet of an endangered waterbird, the Black-necked Stork (*Ephippiorhynchus asiaticus*)

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The feeding behaviour and diet of the Black-necked Stork (*Ephippiorhynchus asiaticus*) were studied as part of a larger study on the ecology, conservation and management of the species. Field studies were carried out on the north coast of New South Wales, Australia during the period 25.04.03 to13.05.05. A total of 59 foraging bouts were observed, covering 37.5 hours. Birds observed comprised adult males, adult females, immatures and juveniles. Eight foraging techniques were noted with a number of these being used consecutively in the one foraging bout. The technique recorded in most feeding events involved a bird walking in water and visually searching, recorded during 51 (86%) bouts. The second most common technique employed involved a bird standing still and scanning the water. This was observed during 44 bouts (75%). The time spent employing each foraging technique and the depth of water used by foraging storks are presented. Items in the diet were fish (eels *Anguilla* sp., Australian Bass *Percalates novemaculeatus*, Sea Mullet *Mugil cephalus*), birds (Australasian Grebe *Tachybaptus novaehollandiae*), reptiles (Eastern Long-necked Tortoise *Chelodina longicollis*), frogs (*Limnodynastes* sp.) and small unidentified animals, possibly insects, molluscs and/or tadpoles. Small unidentified animals were recorded during 14 successful feeding bouts, while eels and frogs were the next most frequent items, (10 bouts and 7 bouts respectively).

The impact of disturbance on Pied Oystercatcher (*Haematopus longirostris*) breeding behaviour and success in northern NSW: preliminary results from two seasons' monitoring

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With ever increasing pressure being placed on our coastal environments by recreational users and developers, the need for understanding the impact of threatening processes upon species and protecting biodiversity has never been greater. We investigated the impact of disturbance on nesting and parental behaviour of Pied Oystercatcher along a 270 km stretch of the northern NSW coast during 2003/04 and 2005/06. During both non-school holiday and holiday periods pairs were disturbed by vehicles, pets or humans. However during holiday periods pairs were more frequently disturbed. The distance a disturbance approached before birds were forced from nests ranged from 300 metres in highly defensive parents to 45 metres in less defensive parents. Time lost incubating ranged from 1 continuous minute to 1 hour and 24 continuous minutes. Factors attributing to highest mean time off nests were people on both the high and mid beach zones and people walking with dogs. The approach of a slow moving vehicle along the shore had little effect on incubating birds. Eggs did not hatch from one nest where parents were frequently flushed for periods of 30 minutes or greater. While no eggs or chicks were crushed by vehicles the risk was high. Vehicles were found to directly impact on adult survivorship and indirectly on chicks. We conclude that management plans should incorporate a buffer zone of 150 metres surrounding nests if hatching success is to be increased. That along with signage, fencing areas may be necessary. This buffer should be maintained until chicks have fledged and should extend to the water's edge, also allowing for the protection of foraging adults. Furthermore, that dog exercise areas within estuaries be restricted to sand-flat habitat with no vegetation, and that on-leash areas be enforced.

A policy analysis of Ramsar: learning from the history of shorebirds and habitats for the future

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The Ramsar convention was signed 1971 and went in force 1975. At that time it was an innovative and hopeful legislation in the international setting. However, over the last 40 years major changes have occurred in the world, including a human growth and ecological development never experienced in the history of man kind, as well as a revolution in computational and information technologies.

The wide acceptance and ratification of Ramsar is hailed by some governments, NGOs and even parts of the public as a big international conservation success story safeguarding wetlands and migratory species. The number of Ramsar sites often gets used as a national and international benchmark measure regarding progress in environmental issues on the globe.

Ramsar centres on the conservation, not protection, of migratory species and their habitats. Here an analysis is shown how Ramsar performs on the ground using migratory shorebird habitat as an example. Selected case studies in Russia, Europe, North America, China, Korea and Africa are discussed. The analysis shows that Ramsar lacks relevant enforcement, is underfunded, has no truly global and strategic coverage, nor are many of its protected sites efficient in size and number to deal appropriately with shorebirds, habitats and flyways. Although Ramsar needs to be science-based, exact migration strategies, population estimates and turn-over rates are often unknown; spatial and population modeling is virtually absent nor legally required. It gets presented that Ramsar, as many other international conservation treaties so far, has slowed, but not stopped, habitat and population loss and transition at any significant level and world-wide. Ramsar does not halt pressures brought by human development, nor does it deal with global change really; relevant digital approaches are not implemented in the legislative text. Believing under the current global regime that Ramsar would safeguard a relevant amount of habitat and shorebirds, and that it would provide a safe legal mechanism for the future, remains doubtful and likely needs a revision.

Therefore, a call is made (i) to enforce and update Ramsar, e.g. through the inclusion of binding and quantitative thresholds, detailed species inventories, computational decision-support and with high resolution mapping products for Ramsar as well as for non-Ramsar sites, and also (ii) to re-define, promote and emphasize our vision and policy action regarding the future of shorebirds, habitats and conservation contributing to global biodiversity maintenance.

A Flyway Partnership - international collaboration for shorebird conservation beyond 2005.

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The past decade of international collaborative effort in shorebird conservation for the East Asian-Australasian Flyway has been coordinated under the Asia Pacific Migratory Waterbird Conservation Strategy and its associated Shorebird Action Plan. A new framework is being developed to improve the opportunities for, and implementation of, international conservation efforts for migratory shorebirds.

Government agencies and NGO's have recognised the value in updating the approach to respond to the changed circumstances of 2006. Key elements to be addressed in the new framework will be:

1. linking shorebird conservation activities more strongly to sustainable development and global agendas (eg Millennium Development Goals)
2. developing greater commitment from all countries in the Flyway, and
3. building on the strengths developed in the Action Plans to deliver a program for all migratory waterbirds rather than for separate species-groups.

A East Asian-Australasian 'Flyway Partnership' - recognised under the World Summit for Sustainable Development (WSSD) and as a regional initiative under the Ramsar Convention - is being promoted as the new framework.

The Flyway Partnership provides a 'sign-on' process for government and non-government organisations. It is anticipated that this mechanism will promote greater engagement and commitment to collaborative work across the Flyway.

Shorebird activities under the Flyway Partnership will be integrated with other waterbird groups to make full use of the synergies that exist across waterbird groups, in regard to research, habitat management, surveying and monitoring and, education and awareness. A single migratory waterbird network is proposed, to replace the 3 separate networks currently operating, to simplify and strengthen networking among sites across the flyway.

The Partnership Text and Action Plan are being drafted by a working group with a diverse membership drawn from across the flyway. It is planned to launch the Flyway Partnership in late 2006.

The importance of community in shorebird conservation – the experience of a national community-based shorebird conservation project

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The challenges facing the conservation of shorebirds in Australia and along the East Asian-Australasian flyway are diverse and include climate change, reclamation of coastal and inland wetlands, alteration to wetland hydrology, invasive weeds, introduced predators, coastal development and human-related disturbance. The effort required to manage and mitigate adverse impacts on shorebird populations involves a combination of stakeholders working in collaboration. Research contributes to our understanding of impacts and informs management, while land management (government and private), community interest and user groups and individuals contribute to the implementation, monitoring and observance of management interventions.

In Australia, the Natural Heritage Trust supports biodiversity conservation and sustainable natural resource management. The contribution of community to conservation is regarded a priority of the Trust and investment is allocated to community capacity building, whereby the community is provided with the understanding and skills to make and implement informed decisions resulting in conservation. The Shorebird Conservation Project (SCP) is NHT funded and aims to facilitate community involvement in on-ground management and abatement of threats at 10 important shorebird sites in Australia. 'Community' includes individuals, interest, user and management groups.

During the past four years the SCP has initiated 31 site-based projects involving 52 stakeholder groups across seven broad categories – Natural Resource Management Bodies, Local Government, State Agency, Traditional Owner, Interest, User and National Conservation Organisations. Thirty two groups were new recruits to shorebird conservation. Activities undertaken by community groups were a combination of education and awareness raising, on-ground habitat management, management planning and advocacy, and survey and monitoring.

Four case studies are evaluated in terms of the key management issues, target audience, implementation group(s) and outcomes. The importance of community is demonstrated, in particular community values and interests, in driving decision-making that delivers outcomes for shorebird conservation. Some activities were easily integrated and others were more challenging for communities, requiring ongoing management and monitoring.

Shorebird Network Sister Sites: consolidating links along the flyway

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Yalu Jiang National Nature Reserve (YJNNR) on the northern Yellow Sea coast of China is a highly significant site for shorebirds during northward migration from New Zealand and eastern Australia. Approximately 50% of the *baueri* subspecies Bar-tailed Godwit population in the East Asian Australasian Flyway stage at Yalu Jiang. The Firth of Thames in New Zealand supports internationally significant numbers of Arctic-breeding shorebirds, in particular Bar-tailed Godwit and Red Knot as well as New Zealand breeding species such as Pied Oystercatcher and Wrybill.

On 26 April 2004 a Memorandum of Understanding between the Miranda Naturalists' Trust and YJNNR was signed in Dandong, China. This ceremony marked the establishment of a sister-site partnership between the two East Asian Australasian Shorebird Network sites. Three initial priority areas for cooperation between Yalu Jiang and Miranda are:

- Training local staff in bird banding techniques
- Assisting with public awareness and education programmes on shorebirds and shorebird habitats
- Facilitating research on Bar-tailed Godwit

Migratory species require a high level of international cooperation, and this sister-site partnership is the first link in providing a joint effort between China and New Zealand in meeting the obligations of each country under the terms of the Bonn Convention on Migratory species. Background, objectives and future directions for the sister-site partnership are discussed.

Previously unknown *Coenocorypha* snipe discovered on Campbell Island

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A population of *Coenocorypha* snipe was discovered on Jacquemart Island, a rat-free 19 ha islet adjacent to Campbell Island in the New Zealand subantarctic, in November 1997. This was the first evidence of *Coenocorypha* snipe occurring in the Campbell Island group, which is believed to have been infested by Norway rats (*Rattus norvegicus*) before the first naturalists visited in 1840. Rats were eradicated from 11,268 ha Campbell Island by the New Zealand Department of Conservation in July 2001. Two snipe were seen, and one caught, on Campbell Island adjacent to Jacquemart Island in March 2005. The bird caught was a fully-feathered chick, indicating successful breeding on Campbell Island. The Campbell Island snipe remains undescribed and critically endangered.

Sharing the shoreline: shorebird population monitoring & habitat management at the Shoalhaven River Estuary, South Coast, New South Wales, Australia

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Dept. Environment and Conservation, National Parks and Wildlife Service staff, in conjunction with interested community people have conducted census surveys of shorebirds at the nationally significant Shoalhaven River estuary at Comerong Island Nature Reserve and adjoining crown land for the previous 3.5 years.
Since 2001 DEC has initiated:

- periodic census of the site in collaboration with the 'Adopt an Estuary' project of the NSW Wader Study Group funded under the National Heritage Trust (NHT) program;
- active conservation management of Little Tern, Pied Oystercatcher and Red-capped Plover breeding events;
- extensive liaison with the beach dog-walking fraternity regarding respect for shorebird-sensitive areas;
- design and implementation with Shoalhaven City Council of a shorebird-friendly and informative car park and site trackhead involving landscaping, shorebird signage and infrastructure;
- habitat monitoring by photopoint technique, particularly the coastal saltmarsh where Grey mangrove *Avicennia marina* & the exotic spiny rush *Juncus acutus* appear to be colonising the low *Sarcocornia quinqueflora* dominated saltmarsh;
- Pest control of *Juncus acutus* plants invading the saltmarsh potentially displacing wader roosts and skulking areas.
- The greatest sustainability challenge is engendering community awareness and respect of the importance of the area for shorebirds and appropriate behaviour within and around their habitat.

Ecological constraint on parental care in the Kentish Plover

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Rich resources are often assumed to allow females to desert and lay a new clutch with a second partner ('classic polyandry'). Here we investigate a precocial shorebird, the Kentish Plover *Charadrius alexandrinus*, and show that abundant resources have an opposite effect on female desertion to that expected. This small shorebird exhibits variable patterns of brood care: the chicks may be raised only by the male, by the female or by both parents. The timing of female desertion varies across broods: some broods are deserted by the female at hatching of the eggs, whereas in others the female stays until the chicks fledge. In our study site in Southern Turkey the Kentish Plovers raise their broods in two habitats: saltmarsh and lakeshore. Food intake was higher on the lakeshore than in the saltmarsh, and the broods moved toward the lakeshore as the season proceeded. As the density of plovers increased on the shore the parents spent more time defending their young, and desertion by female was delayed probably to assist the male in defending the chicks. Taken together, our results are consistent with the hypothesis that seasonal changes in the ecology of brood-rearing habitats influence the movement of broods, which in turn impact upon their breeding system

Modelling habitat suitability for the Madagascar plover (*Charadrius thoracicus*)

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The Madagascar Plover is a shorebird endemic to wetlands of Western Madagascar. Surveys in 2002, 2003 and 2004 produced 1442 sightings in 27 wetland regions. This wader has a restricted habitat requirement since it only breeds on coastal grasslands and saltpans. We use bird locations and Landsat TM imagery to model habitat suitability across Western Madagascar with ecological niche factor analysis (ENFA). This yielded an estimate of maximum global population size of 2679 ± 350 Madagascar Plovers. These data are substantially lower than previous maximum population estimate (up to 6,000 individuals).